CLAIMS

We Claim:

1. A method for performing calibration for testing of a device under test, the method comprising:

connecting a first port of the device under test to a port of a calibration module;

connecting a second port of the device under test to a first port of a device tester;

connecting a third port of the device under test to a second port of a device tester; and,

performing measurements by the device tester to obtain calibration parameters, including:

changing, by the calibration module, termination values at the port of the calibration module in response to commands from the device tester, the changing of the termination values being performed without physical disconnection of the port of the calibration module from the first port of the device under test.

2. A method as in claim 1 additionally comprising:

performing a one-port calibration of the first port of the device tester; and,

performing a one-port calibration of the second port of the device tester.

3. A method as in claim 1 wherein:

the device under test is a power splitter;

the first port of the device under test is an input port of the power splitter; and,

the second port and the third port of the device under test are output ports of the power splitter.

4. A method as in claim 1 wherein the device under test is one of the following:

a power splitter;

a directional coupler.

5. A method as in claim 1 wherein:

the device under test is a directional coupler;

the first port of the device under test is an output port of the directional coupler; and,

the second port and the third port of the device under test are coupled ports of the directional coupler.

6. A method as in claim 1 wherein the calibration parameters are three-port S-parameters:

7. A method as in claim 1 wherein the calibration parameters are the following three-port S-parameters:

S_{11} representing a reflective signal from the first port of the device under test to the first port of the device under test;

S_{21} representing the transmission signal from the first port of the device under test to the second port of the device under test;

S_{31} representing the transmission signal from the first port of the device under test to the third port of the device under test;

S_{12} representing the transmission signal from the second port of the device under test to the first port of the device under test;

S_{22} representing the reflective signal from the second port of the device under test to the second port of the device under test;

S_{32} representing the transmission signal from the second port of the device under test to the third port of the device under test;

S_{13} representing the transmission signal from the third port of the device under test to the first port of the device under test;

S_{23} representing the transmission signal from the third port of the device under test to the second port of the device under test; and,

S_{33} representing the reflective signal from the third port of the device under test to the third port of the device under test;

wherein $S_{21} = S_{12}$, $S_{13} = S_{31}$, and $S_{23} = S_{32}$.

8. A method as in claim 1 wherein the device tester is a network analyzer.

9. A device tester that tests a device under test, the device tester comprising:

a first port;

a second port; and,

a communication port;

wherein the device tester communicates to a calibration module through the communication port, instructing the calibration module to change termination values at a port of the calibration module without physical disconnection of the port of the calibration module from a first port of the device under test, the instructing being given during testing of the device under test when a second port of the device under test is connected to the first port of the device tester, when a third port of the device under test is connected to the second port of the device tester, and when the device tester is obtaining calibration parameters for the device under test.

10. A device tester as in claim 9 wherein the device under test is a power splitter.

11. A device tester as in claim 9 wherein:

the device under test is a power splitter;

the first port of the device under test is an input port of the power splitter; and,

the second port and the third port of the device under test are output ports of the power splitter.

12. A device tester as in claim 9 wherein the device under test is a directional coupler.

13. A device tester as in claim 9 wherein:

the device under test is a directional coupler;

the first port of the device under test is an output port of the directional coupler; and,

the second port and the third port of the device under test are coupled ports of the directional coupler.

14. A device tester as in claim 9 wherein the calibration parameters are three-port S-parameters.

15. A device tester as in claim 9 wherein the calibration parameters are the following three-port S-parameters:

S_{11} representing a reflective signal from the first port of the device under test to the first port of the device under test;

S_{21} representing the transmission signal from the first port of the device under test to the second port of the device under test;

S_{31} representing the transmission signal from the first port of the device under test to the third port of the device under test;

S_{12} representing the transmission signal from the second port of the device under test to the first port of the device under test;

S_{22} representing the reflective signal from the second port of the device under test to the second port of the device under test;

S_{32} representing the transmission signal from the second port of the device under test to the third port of the device under test;

S_{13} representing the transmission signal from the third port of the device under test to the first port of the device under test;

S_{23} representing the transmission signal from the third port of the device under test to the second port of the device under test; and,

S_{33} representing the reflective signal from the third port of the device under test to the third port of the device under test;

wherein $S_{21} = S_{12}$, $S_{13} = S_{31}$, and $S_{23} = S_{32}$.

16. A device tester that tests a device under test, the device tester comprising:

a communication port means for communicating to a calibration module in order to instruct the calibration module to change termination values at a port of the calibration module without physically disconnecting the port of the calibration module from a first port of the device under test;

a first port means for connecting to a second port of the device under test; and,

a second port means for connecting to a third port of the device under test;

wherein the device tester obtains calibration parameters for the device under test.

17. A device tester as in claim 16 wherein the calibration parameters are three-port S-parameters:

18. A device tester as in claim 16 wherein:

the device under test is a power splitter;

the first port of the device under test is an input port of the power splitter; and,

the second port and the third port of the device under test are output ports of the power splitter.

19. A device tester as in claim 16 wherein:

the device under test is a directional coupler;

the first port of the device under test is an output port of the directional coupler; and,

the second port and the third port of the device under test are coupled ports of the directional coupler.

20. A device tester as in claim 16 wherein the calibration parameters are the following three-port S-parameters:

S_{11} representing a reflective signal from the first port of the device under test to the first port of the device under test;

S_{21} representing the transmission signal from the first port of the device under test to the second port of the device under test;

S_{31} representing the transmission signal from the third port of the device under test to the first port of the device under test;

S_{12} representing the transmission signal from the second port of the device under test to the first port of the device under test;

S_{22} representing the reflective signal from the second port of the device under test to the second port of the device under test;

S_{32} representing the transmission signal from the second port of the device under test to the third port of the device under test;

S_{13} representing the transmission signal from the third port of the device under test to the first port of the device under test;

S_{23} representing the transmission signal from the third port of the device under test to the second port of the device under test; and,

S_{33} representing the reflective signal from the third port of the device under test to the third port of the device under test;

wherein $S_{21} = S_{12}$, $S_{13} = S_{31}$, and $S_{23} = S_{32}$.